

Paul Michael Thompson

Graduate Student, Department of Biomedical Engineering
Duke University Medical Center, 9 Genome Court, Surgical Research Pavilion-Room 0207, Durham NC 27710
Email: pmt11@duke.edu • Github: paulmthompson • Web: paulmthompson.github.io • Updated Oct. 19, 2016

Education

Duke University

PhD in Biomedical Engineering (expected 2020)

Research Focus: Bimanual Movements, Motor System Electrophysiology

Advisor: Miguel Nicolelis, MD, PhD

Duke University

Doctor of Medicine (expected 2020)

Clinical rotations in Radiology, Family Medicine, Internal Medicine, Surgery, Psychiatry, Neurology, Pediatrics, and Obstetrics and Gynecology

Case Western Reserve University

MS in Biomedical Engineering (May 2013)

Thesis: A Device Compatible with Functional Magnetic Resonance Imaging for Assessing Brain Activity During a Finger Force Tracking Motor Task.

Advisor: Jayme Knutson, PhD

Case Western Reserve University

BSE in Biomedical Engineering, concentration in bioelectricity (May 2012)

Summa Cum Laude. Case Alumni Association Award for highest GPA in engineering. BME Award for Best Teaching Assistant. BME Award for Best Senior Project. Student Leadership Award for Outstanding Supplemental Instructor.

Research Experience

Ph.D. Graduate Research: *Duke University, Department of Neurobiology.*

Graduate Research Assistant: 09/14 – present

- Designed hardware and software interfaces for wired and wireless extracellular recordings from populations of neurons
- Trained non-human primates to perform bimanual motor tasks
- Acquired extracellular recordings from populations of neurons in non-human primates and rats
- Analyzed neural data to determine event-related activity, population decoding, and high-dimensional correlations

M.S. Graduate Research: *Case Western Reserve University, Department of Physical Medicine and Rehabilitation.*

Graduate Research Assistant: 01/11- 07/12

- Measured the effects of Contralaterally-Controlled Functional Electrical Stimulation using fMRI
- Designed MRI-compatible devices to measure hand movements and forces
- Assisted in completion of IRB protocols

Undergraduate Research: *Case Western Reserve University, Department of Biomedical Engineering.*

Research Assistant: 11/09 – 03/11

- Measured the effect of laryngeal elevation on the ability of the vocal folds to close after transtracheal stimulation
- Recorded and analyzed data generated from canine experiments, as well as monitored the animals.

Undergraduate Research: *Case Western Reserve University, Department of Neurological Surgery.*
Research Assistant: 09/08 – 07/12

- Investigated methods to measure the outcomes of the light-activated cancer therapy Pc4 Photodynamic Therapy.
- Developed Magnetic Resonance Spectroscopy and Dynamic Contrast Enhanced-Magnetic Resonance Imaging protocols and carried out scans
- Assisted in animal care during studies and performed injections and anesthesia

Teaching Experience

Supplemental Instructor: *Case Western Reserve University.* Summer 2009 – Spring 2012

- Held optional review sessions up to three times a week and created worksheets for each
- Conducted additional exam reviews and created practice exams
- Worked closely with course professors and participated in team meetings
- Review session sizes ranged from 20-150 students depending on course size
- Experience with the following courses:
 - ENGR 145 - Chemistry of Materials 6 Semesters
 - BIOL 214 - Genes and Evolution 3 Semesters
 - PHYS 115/116 – Physics (Algebra-Based) 1 Semester
 - CHEM 223/224 – Organic Chemistry 1 Semester
 - EBME 201 - Biophysics 1 – Physiology 1 Semester

Teaching Assistant: *Case Western Reserve University.* Fall 2011

- Served as team leader of four teaching assistants in 135 student engineering physiology course
- Assisted in designing and grading homeworks, quizzes and exams
- Held weekly recitation sections with ~70 student attendance.

Publications

Peer-Reviewed Journal Publications

Jonathan Wallace, Martha O Wang, Paul Thompson, Mallory Busso, Vaijayantee Belle, Nicole Mammoser, Kyobum Kim, John P Fisher, Ali Siblani, Yueshuo Xu, Jean F Welter, Donald P Lennon, Jiayang Sun, Arnold I Caplan, David Dean. Validating continuous digital light processing (cDLP) additive manufacturing accuracy and tissue engineering utility of a dye-initiator package. *Biofabrication*, 6(1): 015003. 2014.

Aaron J Hadley, Paul Thompson, Ilya Kolb, Elizabeth C Hahn, Dustin J Tyler. Targeted transtracheal stimulation for vocal fold closure. *Dysphagia*, 29(3): 346-354. 2014

Peer-Reviewed Conference Proceedings Papers

Dustin J. Tyler, Ilya Kolb, Paul Thompson, Aaron Hadley. “Electrical Stimulation for the Management of Aspiration during Swallowing.” *Conf Proc IEEE Eng Med Biol Soc.* 2012;1:1-6. (Invited Paper).

Vaijayantee Belle, Ali Anka, Nathan Cross, Paul Thompson, Eric Mott, Rahul Sharma, Kayla Gray, Ruozhen Zhang, Joyce Xu, Jiayang Sun, Chris A. Flask, Nancy L. Oleinick, David Dean. “Dynamic Contrast Enhanced-Magnetic Resonance Imaging (DCE-MRI) of Photodynamic Therapy (PDT) Outcome and Associated Changes in the Blood-Brain Barrier Following Pc 4-PDT of Glioma in an Athymic Nude Rat Model.” *SPIE Photonics West 2011*, San Francisco, CA 2011.

Ali Anka, Paul Thompson, Eric Mott, Rahul Sharma, Ruozhen Zhang, Nathan Cross, Jiayang Sun, Chris A. Flask, Nancy L. Oleinick, David Dean. “Dynamic Contrast Enhancement-Magnetic Resonance Imaging

(DCE-MRI) for the Assessment of Phthalocyanine 4 Photodynamic Therapy of Glioma: A U87-derived Tumor Model in the Athymic Nude Rat.” *SPIE Photonics West 2010*. San Francisco, CA 2010.

Abstracts (Poster and Podium Presentations)

Paul Thompson, Mikhail Lebedev, Miguel A. L. Nicolelis. Cortical Representations of Bimanual Movements: Patterns of Interference. Society for Neuroscience 2015.